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THE
RELATION OF THE GENERAL HEALTH
TO
OCULAR HEADACHES.



AN ADDRESS BY DR. LUCIEN HOWE,

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OF THE

AMERICAN MEDICAL ASSOCIATION,

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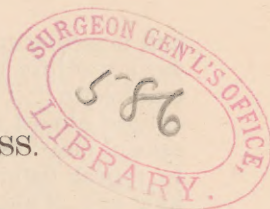
CHAIRMAN'S ADDRESS.

BY LUCIEN HOWE, M.D.

It is one of the duties of the chairman of each Section of this ASSOCIATION to present an "Address" at the opening of the session in his department.

Perhaps this custom would be more honored in the breach than the observance and in the present instance the time would be better employed by proceeding at once to the inviting list of papers which the Executive Committee has prepared. But when one has been complimented by election to the chairmanship of the Section which is generally conceded to be the most active of all the Sections in this ASSOCIATION, it ill becomes him to avail himself of any excuse and fail to acknowledge the honor thus conferred upon him.

Indeed, he assumes a definite responsibility in accepting this position. For while it is manifestly impossible for him to present the barest outline of the year's advance even in this one small corner of the field of medical science, still, it is his duty to observe the trend of ophthalmologic thought, to point out, if he can, the directions in which the lines of progress may be advanced, or, what is yet more important, to sound the alarm if there is danger of any in our ranks going so far and so fast in their eagerness for achievement as to overstep the limits of scientific accuracy, with the inevitable result of retreat, in confusion and in shame, to a more moderate and secure position. With this in view, I feel impelled to ask your attention, very briefly, to a growing tendency among us to regard difficulties of the accommodative



and muscular apparatus as entirely local. I would fain say a word for that nearly forgotten factor, the "general health." This introduction again of a threadbare subject almost demands apology, especially as, for the sake of clearness later, it is necessary now at the outset to repeat definitions which have been agreed upon long ago. Thus, when we say that the pathologic conditions above mentioned produce asthenopia, it is essential that we remember not only what that means, but also the three shades of its meaning.

We must remember that asthenopia is simply the name of a certain group of symptoms, namely, difficulty or discomfort when attempting to use the eyes for near work, occasionally a little redness or smarting of the conjunctiva, and nearly always headache—then called ocular headache. Moreover, we must remember that this group of symptoms may be dependent upon at least three distinct causes. These we have long ago recognized as:

1. Accommodative asthenopia, which, being due to some variation from the normal shape of the typical eye, as near- or far-sightedness, or to astigmatism in some form, necessitates an unusual action of the ciliary muscle and is, of course, to be corrected with a concave or convex glass.

2. Muscular asthenopia. While this is often associated with the accommodative form, it may occur when the globe is perfectly normal. It is due to an unnatural action of the muscles on the outside of the eye, to the recti and possibly to the oblique; it is recognized by the various tests for unequal muscular balance, and is corrected by means of prisms, by tenotomies, partial or total, or by muscular advancement.

3. Central or neurasthenic asthenopia. In this condition no variation from the normal standard can be discovered either as regards the action of the ciliary muscle or the recti or oblique muscles. Or, indeed, if any such abnormal condition did exist, the asthenopia persists after the patient has received full correction of the difficulty by means of glasses or otherwise.

While it may appear puerile to repeat elementary facts at a meeting of ophthalmologists, it is better to err in that respect than to risk the confusion that arises from nebulous ideas defined in vague terms.

This, especially for the reason that, in order to establish the point in question, it is more important to arrange in proper sequence a few facts already well known than to bring forward any that are new.

Now, the object of this paper, as above stated, is to call attention to the too great tendency with most ophthalmologists to consider their cases of asthenopia as belonging to the first or second class. In other words, we look upon the causes of the symptoms as more local than general, as is natural enough with those who, like ourselves, are obliged to focus their entire attention upon a small field of practice. Especially is this true because we naturally see a large proportion of cases of asthenopia which do require only local treatment. Indeed, in a few rare instances, ametropia or a faulty muscular balance may produce by reflex action pathologic symptoms in distinct organs, which symptoms have apparently been relieved by the use of suitable glasses. But let us ask ourselves more exactly concerning accommodative and muscular asthenopia and it will be evident, I think, how often we deal with the third form, how often this becomes in the history of the case what the *Tiers Etat* was to the French Revolution, the element unrecognized or reluctantly acknowledged at first, but dominant in the end.

Take accommodative asthenopia first. In high degrees of far-sightedness or especially of astigmatism, we learned long ago to expect ocular headaches or their allied symptoms. We have prescribed suitable glasses and the asthenopia vanished, as if by magic. Then, later, we learned that in certain individuals lesser degrees, even very minute degrees, of variation from the normal type also gave rise to the same symptoms, and required likewise to be corrected with glasses. This is the positive evidence. But we

should look at the negative evidence as well. For if these same anomalies, which are mathematically definite, produced invariably the same effect, as we ought to expect if the asthenopia springs from local causes, then there would be but very few men, women or children not wearing glasses. I know of no figures more instructive on this point than those obtained by Roosa in his examination of the refraction of a hundred persons who supposed their eyes to be perfectly normal. These individuals, it will be remembered, were of various ages and occupations, and no person had both eyes absolutely perfect, as shown by the combined tests of the ophthalmometer, ophthalmoscope and test glasses, while only 1 per cent. had one eye in that condition. Among them, too, several persons were found having as high as one and one-half or two dioptries of either myopia, hypermetropia or astigmatism, who were blissfully unconscious of their defects.

While thus on the one hand, we find constantly such variations from the normal standard to exist without headache or any symptoms of accommodative asthenopia, so, on the other hand, are we unfortunately familiar with the fact that when the very best and most exact corrections have been made, even under atropin, this asthenopia obstinately persists in almost as great a degree as without the correction.

Next, let us glance at the state of our knowledge concerning muscular asthenopia and arrange before us, in similar sequence, a few well-known facts. We can formulate these in the same manner by saying that while asthenopia usually exists with unequal muscular balance, the same symptoms also frequently persist when that fault can not be detected by any methods of measurement now at our command, or when, having been present formerly, it has been corrected. On the other hand, eyes which have always been considered perfect, which never gave their owners a suspicion of asthenopia, have occasionally been found, on examination, to be in a state of exceedingly

unequal muscular balance. In these cases, even though exceptional, of course, I am careful not to include those in which any existing error of refraction had not been previously fully corrected under a mydriatic, no matter how slight that variation from the normal had seemed to be. Moreover, in this connection, I do not ignore at all that very important distinction which I think should always be made between the sthenic and asthenic varieties of muscular asthenopia.

In other words, we have for muscular asthenopia just what we found before for accommodative asthenopia, namely, that some considerable variations from the normal type, which theoretically should be corrected, do not demand that, the owners of these eyes being perfectly comfortable without glasses. And on the contrary, in many individuals when the variations from that type are very slight, indeed, practically not measurable, the asthenopia continues in spite of every effort, the patients wandering from one office to another in a vain search for relief.

Now, the question naturally arises, why are we obliged to make such an exact adaptation of glasses, or to correct the muscular condition so carefully, with one class of individuals, and not with the other? Under these circumstances we fall back upon our third factor, so conveniently indefinite just then, by saying that the difference is in the "accommodative power" of the individuals, or in the "strength of the muscles" or "*vis a tergo*," as we variously term it. Evidently, though, this is simply using a phrase to cover our ignorance.

In this dilemma, unfortunately too common, we must simply ask ourselves honestly what other condition exists, or what conditions combine, in that individual, to produce the asthenopia? This is a branch of pathology which, as I said at the outset, is too much neglected, and in regard to which I venture to speak only with caution, but it seems safe to say that what we understand in general as anemia, as

imperfect assimilation and as nerve exhaustion, are three important elements which, in varying degrees, separately or together, produce central asthenopia.

Several years ago I measured, with the spectroscopic bands, the amount of hemoglobin present in individuals suffering from certain forms of eye disease, a portion of the results being published then in the Transactions of the Medical Society of the State of New York. It was quite surprising to observe how frequently improvement in these cases corresponded with a return to the normal condition of the blood. I can speak with no such certainty concerning the relation between the condition of the blood and central asthenopia, but it is fairly reasonable to infer that the pallid specimens of humanity who come for glasses and who find relief from a half or possibly a quarter of a dioptrie, or from correspondingly weak prisms, would have strong eyes if they had also more nearly normal blood.

Next, as to imperfect nutrition. There is but little doubt that this also plays an important rôle in aggravating the asthenopia in certain individuals. In order to test this, about three years ago I placed in a corner of my office a pair of the small size Fairbanks scales, noting the weight of those patients to whom very weak glasses proved beneficial, and was not surprised to find that as appetite improved and weight was gained, the glasses could often be dispensed with.

Finally, as to the effect of the so-called "nervous" condition of the individual. It would require too long a digression to discuss that in any detail, nor is it necessary, as I think it will be admitted that this is one element, and an important one, in relation to asthenopia. In this connection the so-called psychic effect of glasses, of manipulations or of "operations," can not honestly be passed by without some notice. It is probable that the mere wearing of a pair of spectacles with simple plane glasses has an effect upon the minds of certain individuals, similar to that produced by a hypnotic suggestion. This observation

was made by Dr. Holt at a recent meeting of the American Ophthalmological Society, and acting on this hint I provided myself with a number of pairs of plane glasses. These have been lent to those who imagined they should have spectacles, or have been exchanged for weak glasses before prescribed, in a sufficient number of instances to prove beyond question this psychic element. Moreover, I have yet to meet with the person who fails to appreciate the advantage of such a trial, or one who is not glad to be rid of any glasses, when the reason for the experiment has been frankly and fully explained. Most practitioners also have heard reports of improvement from their imaginative patients almost before treatment was begun, and certainly the results from some of the methods of making partial tenotomies, can be accounted for more rationally in this way than in any other.

There are, of course, other general causes tending to produce central asthenopia which might be considered in this connection, but which must of necessity be omitted. It should be noted, however, that while the error of refraction which produces accommodative asthenopia remains nearly the same through life, and while, also, the unequal balance belonging to muscular asthenopia varies comparatively little, on the other hand, those conditions of the general health which accompany central asthenopia do change readily. The application of this fact is practical and familiar. Convex glasses or prisms which once gave the patient relief can be changed for those which are weaker, or are voluntarily laid aside altogether when the health of the patient has improved. In certain cases after we have gone through the usual exact routine with ophthalmoscope, ophthalmometer and various muscular tests, it is true we do succeed in detecting some slight anomalies which have existed perhaps for years, and which are aggravated only temporarily by some such fault in the general condition as has been indicated above, and which the family physician himself

has overlooked. Under such circumstances if we then also neglect the general health of the patient and set ourselves at work to correct only the error of refraction or the muscular balance, we may be sure of obtaining little or no improvement at first. But as the patients are patient, and consent to rest, or to exchange a sedentary life for fresh air, or a life of hard work for one with more relaxation, in such cases relief does come, but comes very gradually, and this improvement must be accredited more to nature's tonics and time than to any skill in prescribing glasses or to "exercises," or to any of those measures which in other individuals are undoubtedly of benefit.

I know that this will be considered by many as heresy, but it is none the less the truth. It behooves us to recognize it frankly and to be on our guard accordingly.

We have reason to congratulate ourselves upon the advances made during the last few years, especially in America, in the methods of determining and of treating accommodation and muscular asthenopia. But let us beware of rapid progress in these two lines, at the neglect of a third often equally important.

To avoid that, for our own credit, and for the greater comfort of our patients, I venture to recall these facts, already familiar, concerning the relation of the general health to asthenopia.

